GEMÜ Q51

Motorized pinch valve

Features

- Position indicator for precision control applications
- Fast, safe tube replacement
- Tube replacement about digital interface
- On-site end position programming
- Simple replacement of inserts and compressors for various tube sizes with the same actuator
- Minimized strain on the tube due to the optimized compressor
- Several installation options possible in the plant thanks to the mounting flange or female thread on the body

Description

The GEMÜ Q51 2/2-way pinch valve is a electrically operated as a positioner. The valve guides a tube which is compressed from above by a compressor to control and regulate media. The compressor's specially developed contour and the tube holder's contour minimize the strain on the tube and thus increase the tubes' service life. Tubes can be safely inserted and removed in simple steps and without tools.

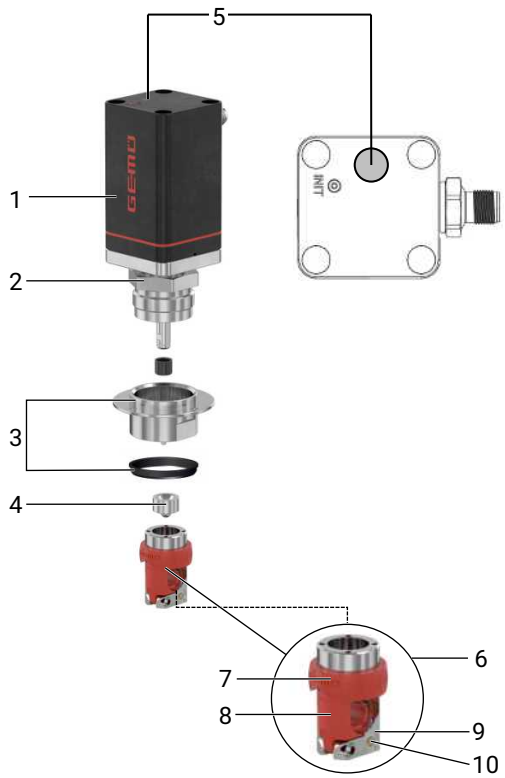
Technical specifications

- **Media temperature:** Please observe the tube manufacturer's specifications
- **Ambient temperature:** Actuator: 0 to 40 °C, Tube: Please observe the tube manufacturer's specifications
- **Operating pressure:** max. 4.5 bar, Please observe the tube manufacturer's specifications
- **Tube outside diameter:** 1/4" l 3/8" l 7/16" l 1/2"
- **Tube's inside diameter:** 1/8" l 1/4"
- **Body materials:** 1.4404 l PA6
- **Supply voltage:** 24 V DC
- **Actuating speed:** Max. 2 mm/s
- **Protection class:** IP 65

Technical data depends on the respective configuration

Product description

Construction



Item	Name	Materials
1	Actuator	PP
2	Union nut	Stainless steel
3	Distance piece with mounting flange including EPDM seal	Stainless steel
4	Compressor	Stainless steel
5	Display of status LED*	
6	Valve body	Stainless steel/PA6
7	Locking ring	PA6
8	Tube holder	PA6
9	Tube carrier	Stainless steel
10	CONEXO RFID chip (see “GEMÜ CONEXO”, page 10)	

*Status LED only available for control modules S0, S1, S2.

Availability

Tube sizes

			Tube outside diameter				
			OD	1/4"	3/8"	7/16"	1/2"
			inch	0.25	0.375	0.438	0.5
Tube inside diameter			mm	6.35	9.53	11.1	12.7
ID	inch	mm	Code	DA	DC	DD	DE
1/8"	0.125	3.180	2	X	X	-	-
1/4"	0.250	6.350	4	-	X	X	X

AG = actuator size
AD = outside diameter
ID = inside diameter

Order data

The order data provide an overview of standard configurations.

Please check the availability before ordering. Other configurations available on request.

Order codes

1 Type	Code
Pinch valve, electrically operated	Q51

2 Tube inside diameter	Code
3.180 mm (1/8") inside diameter	2
6.350 mm (1/4") inside diameter	4

3 Tube outside diameter	Code
6.350 mm (1/4") outside diameter	DA
9.530 mm (3/8") outside diameter	DC
11.110 mm (7/16") outside diameter	DD
12.700 mm (1/2") outside diameter	DE

4 Tube carrier version	Code
Plastic design, stainless steel tube carrier and PA tube holder	7P

5 Voltage/Frequency	Code
24 V DC	C1

6 Control module	Code
Positioner	S0
Positioner 4–20 mA Close error position	S1
Positioner 4–20 mA Open error position	S2

7 Mounting option	Code
Without mounting flange, with 4 x threaded holes in the body	0
With mounting flange above	FT

8 Actuator version	Code
Actuator size 0	0A
Actuator size 1	1A

9 CONEXO	Code
Without	
Integrated RFID chip for electronic identification and traceability	C

Order example

Ordering option	Code	Description
1 Type	Q51	Pinch valve, electrically operated
2 Tube inside diameter	2	3.180 mm (1/8") inside diameter
3 Tube outside diameter	DA	6.350 mm (1/4") outside diameter
4 Tube carrier version	7P	Plastic design, stainless steel tube carrier and PA tube holder
5 Voltage/frequency	C1	24 V DC
6 Control module	S0	Positioner
7 Mounting option	FT	With mounting flange above
8 Actuator version	0A	Actuator size 0
9 CONEXO		Without

Technical data

The media-conveying tubes are not part of the scope of delivery. All technical data applies solely to the valve itself. The suitability and selection of the media-conveying tubes for the intended process is the user's responsibility.

Medium

Working medium: Please observe the tube manufacturer's specifications

Temperature

Media temperature: Please observe the tube manufacturer's specifications

Ambient temperature: Actuator: 0 — 40 °C, Tube: Please observe the tube manufacturer's specifications

Storage temperature: -10 — 40 °C

Pressure

Operating pressure: max. 4.5 bar
Please observe the tube manufacturer's specifications

Product compliance

Machinery Directive: 2006/42/EC

EMC Directive: 2014/30/EU

RoHS Directive: 2011/65/EU

Mechanical data

Protection class: IP 65 acc. to EN 60529

Actuating speed: Max. 2 mm/s

Weight: Approx. 1.2 kg

Mechanical environmental conditions: Class 4M8 acc. to EN 60721-3-4:1998

Vibration: 5g acc. to IEC 60068-2-6 Test Fc

Shock: 25g acc. to 60068-2-27 Test Ea

Duty cycle and service life

Service life: **Control operation** – Class C acc. to EN 15714-2 (≙ 1,800,000 start-ups).

Duty cycle: 60% duty

Electrical data

Supply voltage

Voltage: 24 V DC ± 10%

Rating: ≤ 24 W (24 V DC)

Reverse battery protection: Yes

Analogue input signals

Set value as current signal, control module code S0 / S1 / S2

Input signal: 4–20 mA

Input type: passive

Input resistance: 50 Ω

Control accuracy: ±1%

Digital input signals

Function: Tube replacement function

Voltage: 24 V DC

Logic level "1": > 15 V DC

Logic level "0": ≤ 5 V DC

Analogue output signals

Actual value as current signal, control module code S0 / S1 / S2

Output signal: 4–20 mA

Output type: Active

Load resistor: 650 Ω

Short-circuit proof: Yes

Behaviour in the event of an error

Function: In the event of an error the valve moves to the error position.

Notes: Moving to the error position is only possible with full power supply. This behaviour is not a safety position. The valve must be operated with a GEMÜ 1571 emergency power supply module (see accessories) to ensure the function in case of voltage loss.

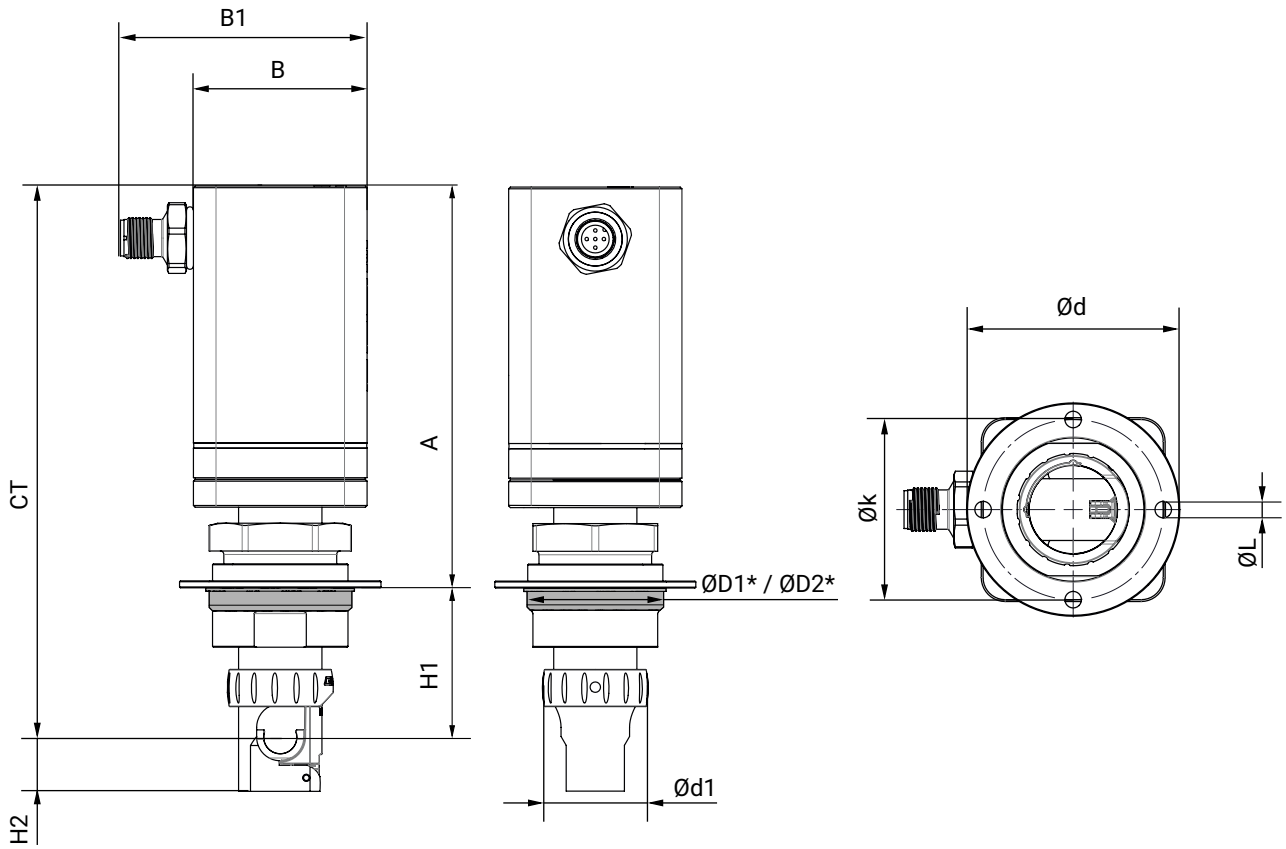
Error position: Hold - Actuator stays in the approached position (control module S0)

Close - Actuator moves to the Closed position (control module S1)

Open - Actuator moves to the Open position (control module S2)

Dimensions

Actuator for tube outside diameter ≤ 1/2"

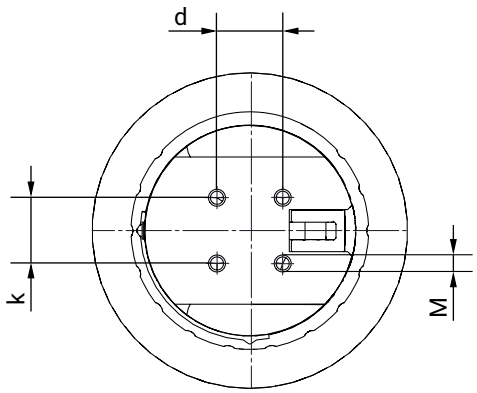


A	B	B1	CT	Dia. D1*	Dia. D2*	Dia. d	Dia. d1	H1	H2	Dia. k	Dia. L
115.7	50.0	71.0	158.7	39.0	42.0	58.0	30.5	43.0	15.6	49.0	4.5

Dimensions in mm

* D1 = diameter without seal, D2 = diameter with seal

Valve body, without mounting flange

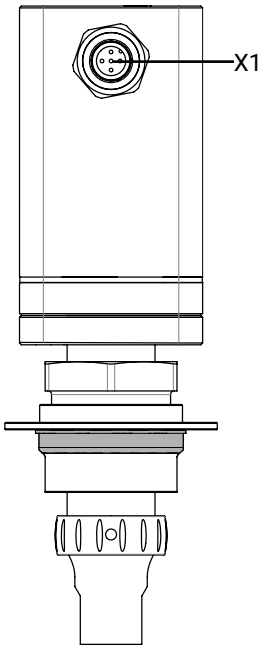


Tube outside diameter	d	k	M
≤ 1/2"	7.0	M2	7.0

Dimensions in mm

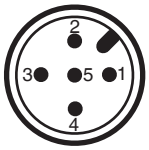
Electrical connection

Position of the connectors



Electrical connection

Connection X1



Five-pin M12 built-in socket, A-coded

Pin	Signal name
1	24 V supply voltage
2	I+/U+, set value input
3	GND
4	I+/U+, actual value output
5	Digital input 1 / tube replacement function

GEMÜ CONEXO

The interaction of valve components that are equipped with RFID chips and an associated IT infrastructure actively increase process reliability.

Thanks to serialization, every valve and every relevant valve component such as the body, actuator or diaphragm, and even automation components, can be clearly traced and read using the CONEXO pen RFID reader. The CONEXO app, which can be installed on mobile devices, not only facilitates and improves the "installation qualification" process, but also makes the maintenance process much more transparent and easier to document. The app actively guides the maintenance technician through the maintenance schedule and directly provides him with all the information assigned to the valve, such as test reports, testing documentation and maintenance histories. The CONEXO portal acts as a central element, helping to collect, manage and process all data.

For further information on GEMÜ CONEXO please visit:
www.gemu-group.com/conexo

Ordering

GEMÜ Conexo must be ordered separately with the ordering option "CONEXO".

Accessories

GEMÜ 1219

Cable socket / cable plug M12

The GEMÜ 1219 is a connector (cable socket / cable plug) M12, 5-pin. Straight and/or 90° angled plug type. Defined cable length or with threaded connection without cable. Various materials available for the threaded ring.

Description	Length	Order number
5-pin, angle	without cable	88205545
	2 m cable	88205534
	5 m cable	88205540
	10 m cable	88210911
	15 m cable	88244667
5-pin, straight	without cable	88205544
	2 m cable	88205542
	5 m cable	88205543
	10 m cable	88270972
	15 m cable	88346791

provided in the scope of delivery

GEMÜ 1571

Emergency power supply module

The GEMÜ 1571 capacitive emergency power supply module is suitable for valves with motorized actuators such as GEMÜ eSyStep and eSyDrive as well as the GEMÜ C53 iComLine control valve. In the event of a power failure, the product provides an uninterrupted power supply so that the valve can be moved to the safety position. The emergency power supply module is available individually or with an expansion module and can supply several valves. The input and output voltage is 24 V.

GEMÜ 1571 emergency power supply module			
Input voltage	Output voltage	Capacity	Item number
24 V	24 V	1700 Ws	88660398
24 V	24 V	13200 Ws	88751062

GEMÜ 1573

Switching power supply unit

The GEMÜ 1573 switching power supply unit converts unstable input voltages from 100 to 240 V AC into a continuous DC voltage. It can be used as an accessory for valves with motorized actuators e. g. GEMÜ eSyLite, eSyStep und eSyDrive and for additional devices with a 24 V DC power supply. Different power levels, output currents and a 48 V DC version for servoDrive actuators are available.

GEMÜ 1573 switching power supply unit			
Input voltage	Output voltage	Output current	Item number
100 - 240 V AC	24 V DC	5 A	88660400
		10 A	88660401

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